FINAL ENVIRONMENTAL ASSESSMENT

for the

ACEQUIA DE LA MESA PRIETA REHABILITATION PROJECT
RIO ARRIBA COUNTY
NEW MEXICO

SECTION 215 WATER RESOURCES DEVELOPMENT ACT

Prepared by

US Army Corps
of Engineers®
Albuquerque District

4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

January 2009

Finding of No Significant Impact
Section 215 Water Resources Development Act
Acequia de la Mesa Prieta
Rio Arriba County
New Mexico

The U.S. Army Corps of Engineers (Corps), Albuquerque District, in cooperation with and at the request of the Acequia de la Mesa Prieta, Rio Arriba County, New Mexico, is planning a project that would improve the acequia.

The construction work is authorized under Section 1113 of the Water Resources Development Act of 1986 (Public Law 99-662). The Act authorizes the Acequia Rehabilitation Program to conduct restoration and rehabilitation of irrigation ditch systems (acequias) in New Mexico. Under Section 1113 of the Act, Congress has found that New Mexico's acequias date from the eighteenth century and, due to their significance in the settlement and development of the western United States, should be restored and preserved for their cultural and historic values to the region. The Acequia de la Mesa Prieta is the local sponsor. The duration of the proposed construction would be four months, and is expected to start in January 2009.

The proposed action involves the improvement of water related infrastructure for the Acequia de la Mesa Prieta. The project would construct: 1) 4,000 feet of new 18-inch diameter plastic pipeline from the existing point of diversion downstream along the road embankment; 2) a new sluice structure to sluice out heavy sediment, trash and debris before they enter the new pipeline; 3) a new sluice at the inlet of the existing welded steel pipe siphon to sluice out secondary sediments before irrigation water enters the siphon; 4) an extension to the existing 36-inch diameter corrugated metal pipe, located under U.S. Hwy. 285, over the new PVC pipeline; and 5) an extension to the the existing wire-bound mattress twenty-four feet to safely pass drainage flows from U.S. Hwy. 285 over the new 18-inch diameter plastic pipeline. Under the No-Action alternative, there would not be any improvements made to the acequia ditch.

The proposed acequia (irrigation ditch) construction work would be consistent with criteria under the Irrigation Exemption for Section 404 of the Clean Water Act (CWA; 33 U.S.C. 1251 et seq.); therefore a Section 404(b)(1) analysis would not be needed for the project. Construction along the existing acequia alignment would not affect the adjacent floodplain. Therefore, the planned action is consistent with Executive Order 11988 (Floodplain Management). The proposed work complies with Executive Order 11990 (Protection of Wetlands) as no wetlands are within the project area.

No prehistoric or historic archaeological sites or other historic properties were found during cultural resources surveys or are known to occur within or immediately adjacent to the project area. The Corps has received no indication of tribal concerns that would impact this project. Based on this information, the Corps is of the opinion that there would be “No Historic Properties Affected” by the proposed undertaking or on the historic and cultural resources of the region.

None of the species of concern listed for Rio Arriba County are expected to occur in the project area. There would be no effects to Bald Eagles, Southwestern Willow Flycatchers, Rio Grande silvery minnows, or black-footed ferrets.

Best Management Practices (BMPs) that would be employed during construction include the use of silt fences as part of the Fugitive Dust Control Permit, wetting of soils within the construction zone, and compliance with local soil sedimentation and erosion-control regulations. The contractor would be required to have emission control devices on all equipment, and to use paved or graveled roads for access to the work area if possible. Construction has been scheduled during winter months when reptiles and amphibians are less active. Sloped escape ramps will be provided along the ditch during construction to facilitate passive escapement by small animals. The trenches would be examined daily, prior to starting work, for small mammals and reptiles to be removed prior to initiating work. A Storm Water Pollution Prevention Plan would be prepared by the contractor and implemented during construction. Disturbance to vegetation during construction would be mitigated by native re-seeding and re-vegetation with plant species native to New Mexico. All equipment would be cleaned when moving between areas to prevent transfer of noxious weeds.

Only minor short-term adverse impacts to visual resources, soils, air, noise, vegetation, and wildlife, would occur during construction. No impacts would occur to physiography, geology, land use, water resources, climate, wetlands or other waters of the U.S., special status species, floodplains, socioeconomics, environmental justice or cultural resources. The proposed project would not result in any moderate or significant, short-term, long-term, or cumulative adverse effects.

The planned action has been fully coordinated with federal, state, tribal, and local agencies with jurisdiction over the ecological, cultural, and hydrological resources of the project area. Based upon these factors and others discussed in detail in the Environmental Assessment, the planned action would not have a significant effect on the human environment. Therefore, an Environment Impact Statement will not be prepared for the proposed improvement of the acequia irrigation ditch.

5 Jan 09
Date

for Kimberly M. Colloton
Lieutenant Colonel, U.S. Army
District Commander

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1.0 INTRODUCTION

1.1 Background and Location

The Water Resources Development Act (WRDA) of 1986 (Public Law 99-662; 33 U.S.C. 2201 et. seq. as amended), authorizes the Acequia Rehabilitation Program for the restoration and rehabilitation of irrigation ditch systems (acequias) in New Mexico. Under Section 1113 of the Act, Congress has found that New Mexico's acequias date from the eighteenth century and, due to their significance in the settlement and development of the western United States, should be restored and preserved for their cultural and historic values to the region. The Secretary of the Army, therefore, has been authorized and directed to undertake, without regard to economic analysis, such measures as are necessary to protect and restore New Mexico's acequias. The Act also recognized community acequias as public entities, allowing acequia officials to serve as local sponsors of water related projects through the Department of Defense.

Section 215 of the Flood Control Act of 1968 (P.L. 90-483), as amended, provides that the Secretary of the Army may enter into an agreement to credit or reimburse the costs of certain work accomplished by states or political subdivisions thereof, which later is incorporated into an authorized project. The Secretary of the Army, when he determines it to be in the public interest, may enter into agreements providing for reimbursement to States or political subdivisions thereof for work to be performed by such non-Federal public bodies at water resources development projects authorized for construction under the supervision of the Chief of Engineers. The U.S. Army Corps of Engineers, Albuquerque District (Corps) would reimburse 75 percent of total project cost and is, therefore, the action agency for this project. The Corps has the authority for review and approval of the environmental impacts of the proposed project, as presented in this Environmental Assessment (EA). The New Mexico Office of the State Engineer (OSE) is the project sponsor, and with the local ditch association, would be responsible for the remaining 25 percent of construction costs. Project design and inspection would be undertaken by the USDA Natural Resources Conservation Service.

The proposed Acequia de al Mesa Prieta rehabilitation project area is located approximately six miles south of Ojo Caliente, New Mexico on the Rio Ojo Caliente along U.S. Hwy. 285. It is also approximately seventeen miles north of' Espanola, Rio Arriba County, New Mexico (Figure 1). The principal objective of the acequia rehabilitation project is to improve the maintenance of the main canal and the efficiency of water delivery to the fourteen acequia members. Project construction would be scheduled in January 2009, during the non-irrigation season with an expected duration of about four months.

1.2 Purpose and Need

The purpose of this project is to provide the acequia with a reliable and more efficient water distribution system that is more efficient at removing sediment from diverted water and less subject to erosion from the U.S. Hwy. 285 road and bank. Erosion from the slope supporting the U.S. Hwy. 285 road results in continual sedimentation of the ditch.

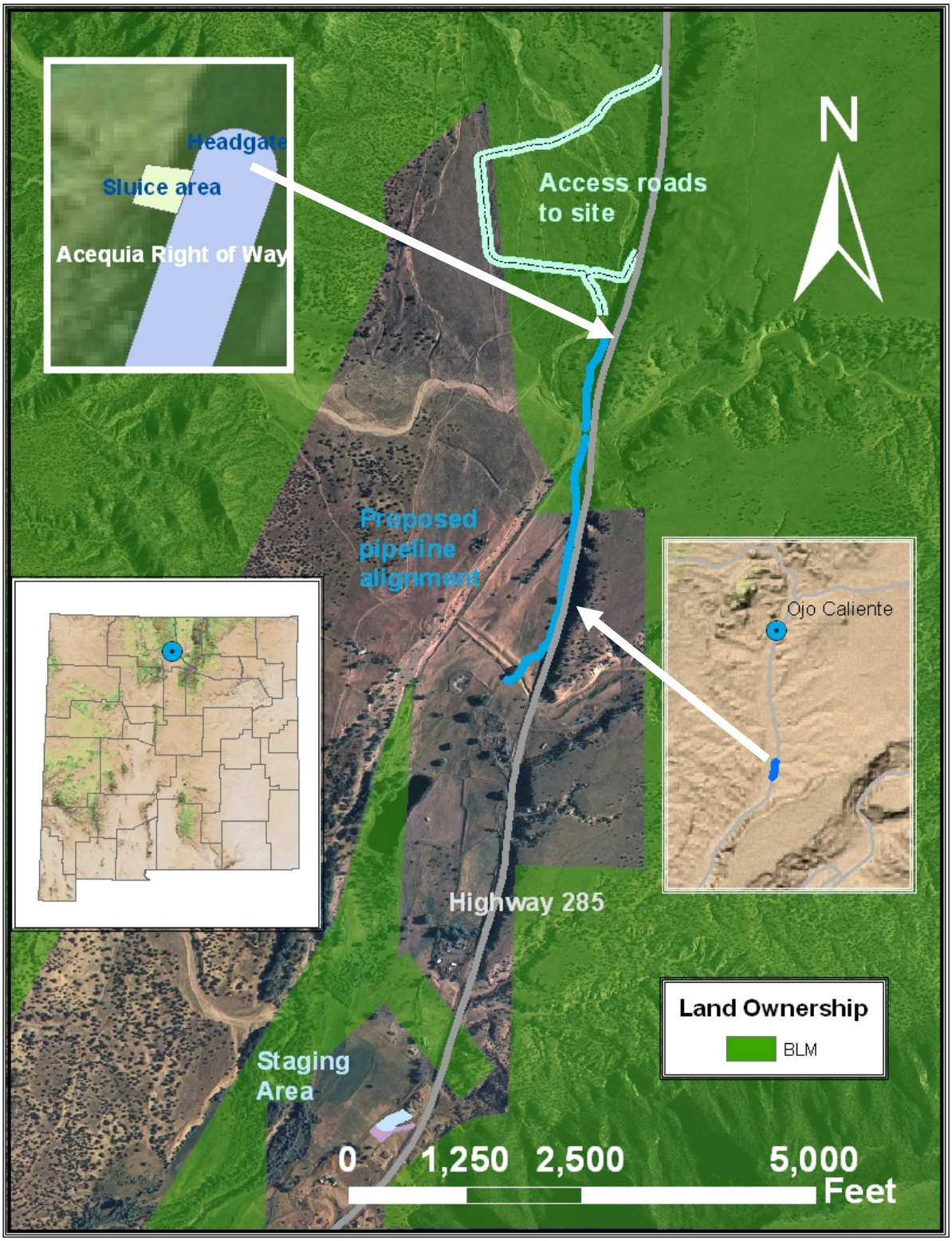

Figure 1. Vicinity Map of Proposed Location for Acequia de la Mesa Prieta, Rio Arriba County, New Mexico.

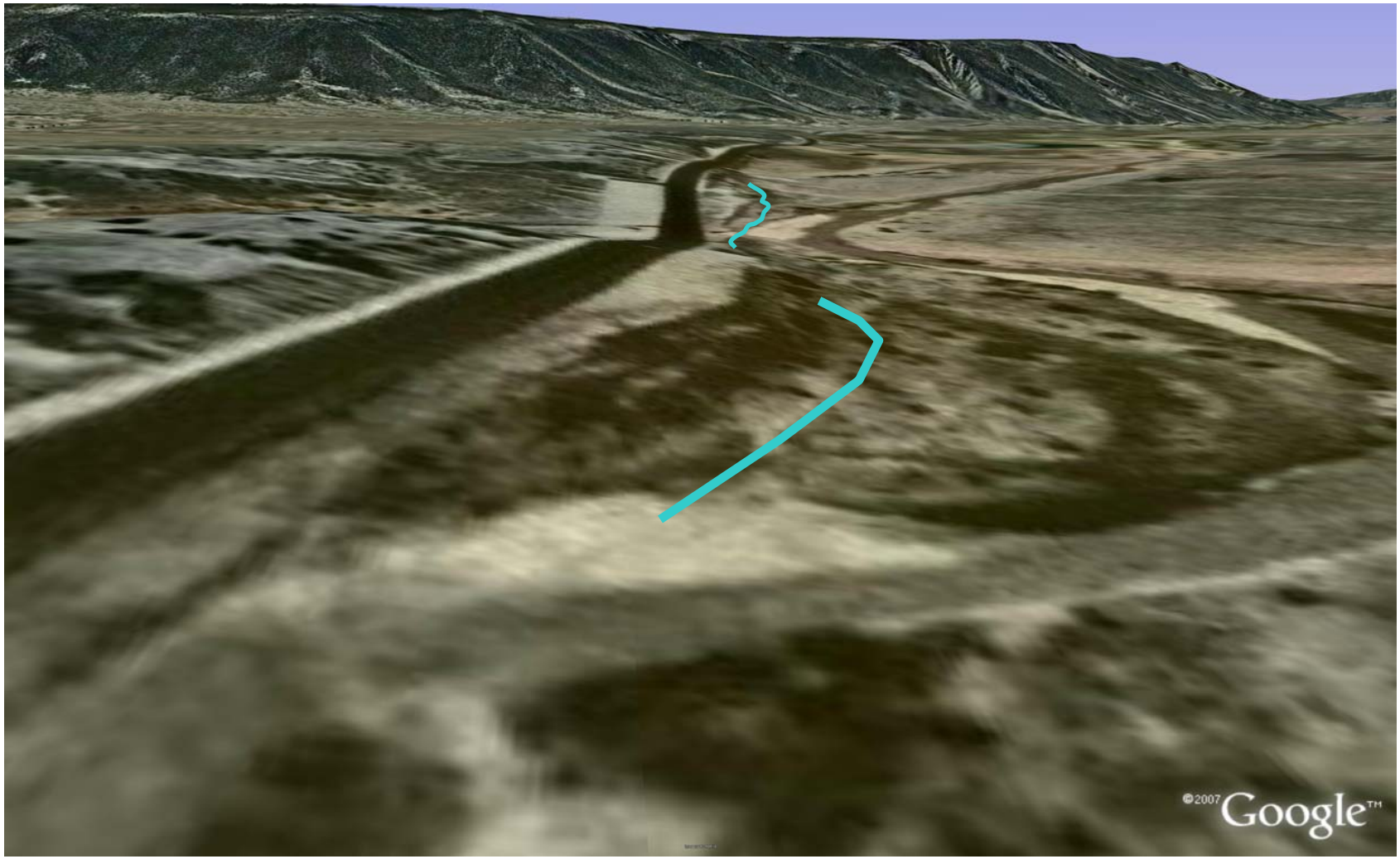

Figure 2. Topographic perspective of Acequia de la Mesa Prieta, New Mexico along the base of the escarpment and roadbed. View looking south from the diversion.

1.3 Regulatory Compliance

This Draft Environmental Assessment (DEA) was prepared by the Corps, Albuquerque District in compliance with all applicable Federal Statutes, Regulations, and Executive Orders, including the following:

- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470)
- Clean Water Act of 1972 and Amendments of 1977 (CWA)
- Clean Air Act of 1972, as amended (42U.S.C. 7401 *et seq.*)
- Endangered Species Act of 1973, (ESA) as amended (16 U.S.C. 1531 *et seq.*)
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, 1994
- Executive Order 13112, Invasive Species, sec. 2(a)(2)(IV), 1999
- Farmland Protection Policy Act of 1981, as amended (7 U.S.C. 4201 *et seq.*)
- Federal Noxious Weed Act of 1974 (Public law 93-269; 7 U.S.C. 2801)
- Floodplain Management (Executive Order 11988)
- National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*)
- Regulations of Implementing the Procedural Provisions of NEPA (40 CFR 1500 *et seq.*)
- National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 *et seq.*)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 *et seq.*)
- Protection and Enhancement of the Cultural Environment (Executive Order 11593)
- Protection of Wetlands (Executive Order 11990)
- Safe Drinking Water Act (SDWA)
- U.S. Army Corps of Engineers Procedures for Implementing NEPA (33 CFR 230; ER 200-2-2)

This DEA also reflects compliance with all applicable State of New Mexico and local regulations, statutes, policies, and standards for conserving the environment such as water and air quality, endangered plants and animals, and cultural resources.

1.4 Scoping and Issues

Scoping for this DEA is based on potential issues at the proposed project site. They include best management practices, water quality, vegetation and wildlife. Appendix A contains a copy of the scoping letter, dated August 30, 2008, submitted to tribal and government agencies. No responses have been received during the scoping process.

2.0 DESCIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

All agencies that assist or take part in projects that utilize Federal funding are mandated by the National Environmental Policy Act (NEPA) to evaluate alternative courses of action. Typically, alternatives are a set of different locations that satisfy certain defined project criteria. However, alternatives can also include design considerations and/or attributes that may mitigate or reduce

impacts generated by a given action. In general the NEPA process provides decision makers with an evaluation of the present and future conditions with regard to the implementation and timing of an alternative at a given site. Finally, a particular design chosen from alternatives evaluated can then be implemented in the best interest of the public and environment.

2.1 Proposed Action

The Corps, Albuquerque District, in cooperation with the Acequia de la Mesa Prieta proposes to construct: 1) 4,000 feet of new 18-inch diameter plastic pipeline would be buried from the existing point of diversion downstream along the road embankment (Figure 1; 2) a new sluice structure to sluice out heavy sediment, trash and debris before they enter the new pipeline; 3) a new sluice at the inlet of the existing welded steel pipe siphon to sluice out secondary sediments before irrigation water enters the siphon; 4) extend existing 36-inch diameter corrugated metal pipe, located under U.S. Hwy. 285, over the new PVC pipeline; and 5) extend the existing wire-bound mattress twenty-four feet to safely pass drainage flows from U.S. Hwy. 285 over the new 18-inch diameter plastic pipeline. Vegetation would be removed from approximately 0.55 acres along the acequia alignment during construction. A 0.8 acre staging area has been identified on the majordomo's property (Figure 1). All pipeline work is within the acequia's right-of-way, and is in conformance with the Taos Resource Management Plan (BLM 1988). Part of the proposed sluicing structure at the headgate extends beyond the acequia right of way easement, and would require authorization from the Bureau of Land Management for the 30' x 30' footprint (Figure 1 inset).

As the action agency, the Corps would provide 75-percent of construction funding for this project. The non-Federal financial responsibility of any work carried out under this section of the Act is 25 percent. The location of the ditch at the base of the roadbed escarpment makes it subject to filling by eroding sediment from the adjacent slope. The New Mexico Office of the State Engineer is the project sponsor, and with the local ditch association, would be responsible for the remaining 25 percent of construction costs. Project design has been completed by the USDA Natural Resources Conservation Service (2006).

The present irrigation system is unreliable and subject to erosion from the adjacent bank for U.S. Hwy. 285. The current proposed acequia improvements would replace the existing open earthen ditch and rehabilitate existing piping under the arroyo. The proposed action would construct a new plastic pipeline with sluicing structures and protective features that would exclude adjacent runoff, trash and debris. This alternative was selected because of ease of operation, efficiency, maintenance and available site conditions with easy access, and also low annual maintenance cost. The proposed construction period for the proposed action is four months and is expected to be scheduled in January 2009. The Federal costs for this phase of the proposed project are $225,000 with a non-Federal cost share of $75,000.

2.2 Alternative Analysis

In general, standard earthen ditch channel rehabilitation is accomplished either by installing pipe in the old ditch, lining the ditch with concrete, lining the ditch with plastic or a combination of

these methods. Pipes or siphons that cross arroyos require periodic repair or replacement due to aging or damage from storm water flows. Factors that can determine the particular method of ditch rehabilitation include the elevation and slope of land adjacent the ditch, public safety, and cost. Seepage problems and bank stabilization are resolved with either piping or concrete lining. Maintenance of open, concrete lined ditches is easier as areas needing repairs are readily identified and accessible. Open ditches are aesthetically pleasing and in keeping with the cultural and historical nature of these structures. Buried pipe eliminates public safety concerns associated with open ditches, eliminates sediment entry from adjacent surface water runoff erosion in sloped areas, and eliminates channel blockages from external debris. At the base of slopes, replacing the earthen ditch with pipe can restore natural subsurface hydrology. Pipe or concrete linings both provide for more efficient distribution of irrigation water to the users and reduced maintenance of the system.

The main alternative to piping was the construction of a non-reinforced concrete ditch lining. However, this was not selected because the new concrete ditch lining would be constructed parallel to, and at the base of the roadbed for U.S. Hwy. 285. Debris, trash and sediment would continue to run off the slope directly into the new ditch. The maintenance cost to continually remove sediment and debris would remain as high as the pre-project ditch. The section of ditch along U.S. Hwy. 285 would be piped rather than lined. If this portion was lined it would be prone to channel blockage from external debris. Piping this section eliminates this factor.

2.3 The No-Action Alternative

Under the No-Action alternative, there would be no construction of the irrigation pipeline, sluicing structures, protective culvert or wire-bound mattress. No federal funding would be expended and there would be no new effects to the project site or surrounding environment. The acequia would continue to expend funds for routine cleaning and maintaining the structural integrity of the open ditch. The open ditch would also complicate maintenance of the adjacent roadbed for highway U.S. Hwy. 285. The No-Action alternative would have no impact to the ensuing resources; however the acequia would continue to fill with sediment and require constant maintenance.

3.0 EXISTING ENVIRONMENT AND FORESEEABLE EFFECTS

3.1 Physical Resources

3.1.1 Physiography and Geology

The project area is on the Intermontane Plateaus of the Southern Rocky Mountains Province (Fenneman and Johnson 1946; Natural Resources Conservation Service 2008a). The Rio Ojo Caliente is a tributary to the Rio Chama, with the Mesa Prieta acequia located upstream of the confluence. Landforms in most areas are controlled by the underlying sedimentary rock formations, with fluvial landforms in the Rio Grande rift basin. Elevation ranges between 4,600 to 9,300 feet (1,400 to 2,835 meters) in areas of the foothills and high mesas that border the Southern Rocky Mountains. Relief generally is less than 1,500 feet (455 meters).

Most of the area is characterized by generally horizontal beds of sedimentary rocks (Natural Resources Conservation Service 2008a). The sedimentary rocks have been eroded into plateaus, mesas, hills, and canyons. Wide valleys in the rift basin have accumulated deep alluvial sediments, and fan remnants are common. The Española Basin is a west-tilted half graben and a prominent feature of the Rio Grande rift. Surficial geology in the project area consists of west-dipping beds of the Tesuque Formation, which are middle to upper Miocene age (Kelson and Olig 1995), and modern alluvium associated with arroyo channels.

Physiographic characteristics of the project area and local geologic conditions would not be affected by either the no action or the proposed action alternatives. The proposed action would not cause any marked changes in local surface topography.

3.1.2 Soils

The soil in the project area is primarily stream alluvium (Abiquiu-Peralta complex) derived from sandstone resulting in a silt loam above a fine sandy loam with a base of stratified cobbles, gravel and sand over the floodplain for the Rio Ojo Caliente (Natural Resources Conservation Service 2008a). The adjacent hillslope is composed of sandy loam derived from sandstone (Florita-Rock outcrop complex) on top of rock and bedrock. The soil moisture regime is mainly aridic with a mesic soil temperature (Natural Resources Conservation Service 2008b).

Soil conditions in the project area would not change with the no action alternative. Continuing maintenance of the existing facility would include periodic removal of accumulated sediment from the open ditch segments.

The proposed action would include placement of soil to fill the existing ditch, bed the pipeline, and level the ground surface of the filled area. The resulting fill would cover about 0.55 acres (*i.e.* an area averaging about six feet wide with a length of 4,000 feet). The fill would be similar in composition to existing soils. The 0.55 acre impact area would be devoid of vegetation in the short term and would therefore be subject to increased erosion rates compared to undisturbed, vegetated areas. Another 0.8 acres of land on the majordomo's property (Figure 1) would be used as a staging area. No soil disturbance is expected at the staging area as it would be used only for stockpiling materials and equipment. Soil would be disturbed only for a short time during construction. After construction, soils would be stabilized with the re-seeding and the reestablishment of vegetation.

The existing soil conditions in the project area were created by irrigated agriculture, and road construction. Ongoing actions affecting soils in the project area are limited to periodic maintenance of the open ditch.

The appropriate area of analysis for cumulative effects is the project area because effects of the proposed action on soils would diminish markedly outside of this area. The proposed action would not overlap in time or space with past and ongoing ditch maintenance actions that affect soils in the project area. This is because effects of the past and ongoing actions would cease with implementation of the proposed action. Ditch maintenance actions would be supplanted by placement of fill and surface disturbance associated with the proposed action (*i.e.* the effects

would not accumulate). The soils in the project area would not be affected by the proposed action alternatives.

3.1.3 Climate

Rio Arriba County has a semiarid climate. The project area has a mid-latitude desert climate, with an annual average precipitation amount of 9.84 inches (Western Regional Climate Center 2007). Precipitation is irregular, but there is typically a pattern of monsoonal rains in July and August as Gulf air masses penetrate into the region (Figure 3). Cyclonic precipitation occurs during winter months, with average annual snowfall in the area of about 9.9 inches. Average diurnal temperature fluctuations of 20° F to 30° F are characteristic of the project area. Summer temperatures are warm and winters are mild (Figure 4). Average air temperatures worldwide are predicted to increase beyond the current range of natural variability because human activities have, since the Industrial Revolution, caused accumulation of greenhouse gases (*e.g.* carbon dioxide, methane, nitrous oxide, chlorofluorocarbons) in the atmosphere (U.S. Environmental Protection Agency 1998, 2005). The potential impacts resulting from climate change are varied, even within the State of New Mexico (New Mexico Agency Technical Work Group 2005). Summer air temperatures in the southwestern U.S. are predicted to rise considerably from 2010 through 2039, average annual precipitation is expected to decrease, and mountain snow-packs are predicted to decrease significantly (Field *et al*. 2007: 627).

New Mexico Governor Bill Richardson signed Executive Order 05-33 in 2005, which included development of recommendations for reducing greenhouse gas emissions in the State to year 2000 levels by 2012, 10 percent below 2000 levels by 2020, and 75 percent below 2000 levels by 2050. The year 2000 reference level is 83 million metric tons of carbon dioxide equivalent gases (MMtCO e; New Mexico Climate Change Advisory Group 2006: 2-2). Residential and commercial fuel use accounted for about five percent of total emissions in the State in 2000 (New Mexico Climate Change Advisory Group 2006: 2-4), or about 7.3 MMtCO e (New Mexico Climate Change Advisory Group 2006: 2-6).

The proposed action would result in greenhouse gas emissions on the order of 3.6 metric tons and would cumulatively add to past, ongoing, and future greenhouse gas emissions in New Mexico. The project-related emissions would be a very small proportion of the total greenhouse gas emissions in the State (83,000,000 metric tons). Project-related greenhouse gas emissions can be reduced by implementing one or more of the measures described above. Climate would not be adversely impacted by the project.

3.1.4 Water Resources

The project area is located on the alluvial floodplain of the Rio Ojo Caliente. The peak storm flows since 1932 are between 2000-3000 cfs, based on the USGS Rio Ojo Caliente at La Madera, NM gage (08289000) data. The range of average annual discharge is between 11 and 204 cfs. The project area includes the existing Acequia de la Mesa Prieta irrigation ditch and Arroyo de Pueblo. These are ephemeral water features.

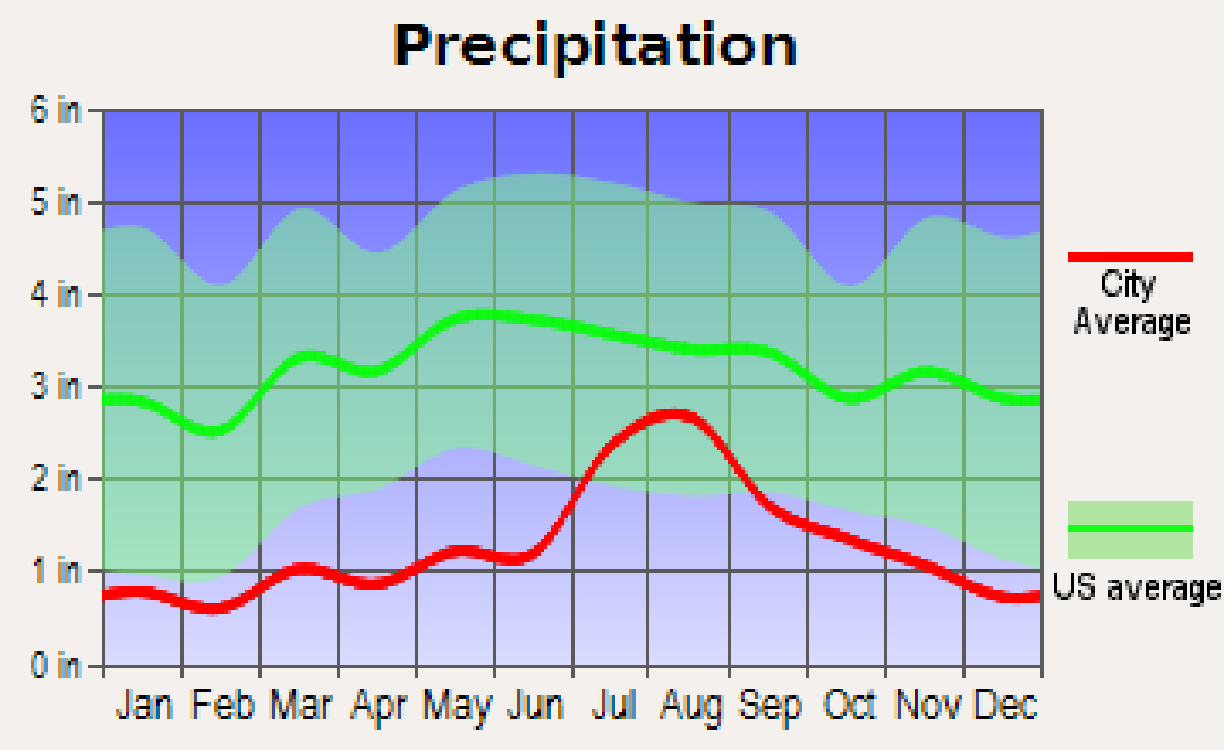

Figure 3. Precipitation characteristics in Rio Arriba County near project area. Graph generated by City.com (2008).

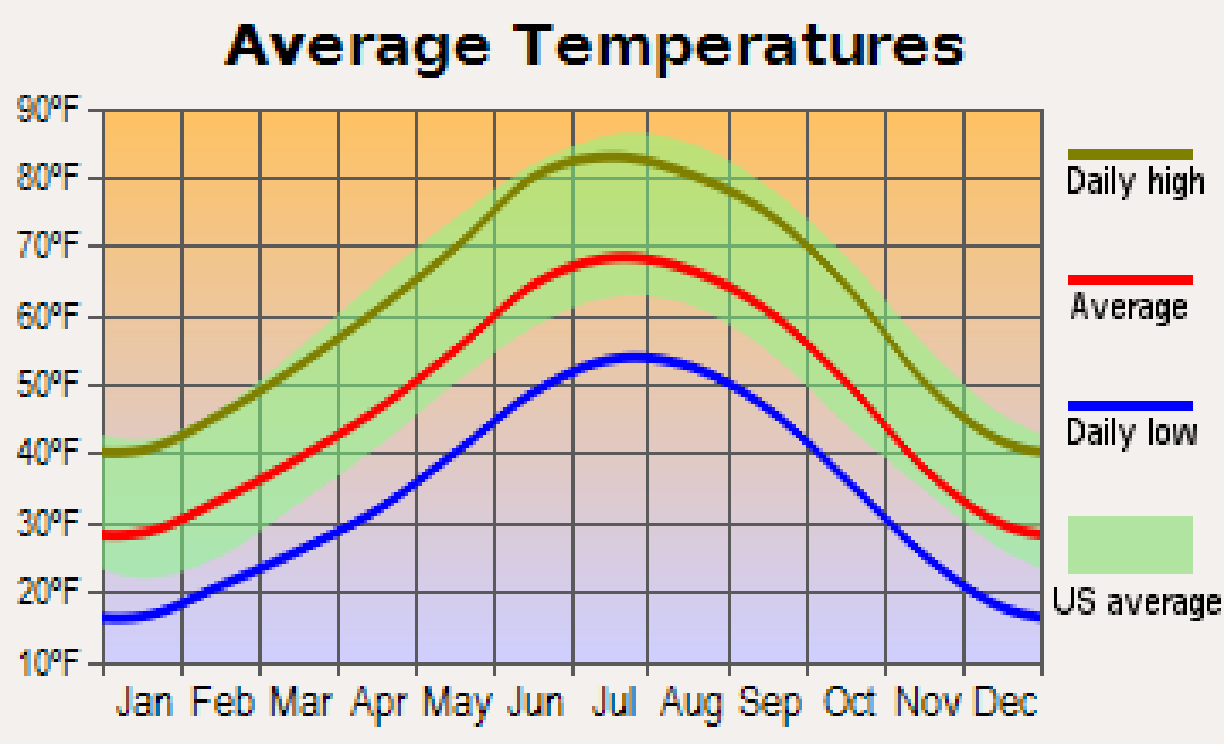

Figure 4. Temperature characteristics in Rio Arriba County near project area. Graph generated by City.com (2008).

Section 404 of the Clean Water Act, (CWA; 33 U.S.C. 1251 *et seq*.) as amended, provides for the protection of waters of the United States through regulation of the discharge of dredged or fill material. Projects that involve a discharge, or placement, of dredged or fill material in the waters of the United States, including wetlands, require the Corps to complete a Section 404 (b)(1) evaluation. Construction of irrigation ditches is exempted from Section 404 of the Clean Water Act (CWA; 33 U.S.C. 1251 et seq.); therefore a Section 404(b)(1) analysis would not be needed for the project. There would be no discharge of dredged or fill material into Waters of the United States.

Section 401 of the CWA, (CEA; 33 U.S.C. 1251 *et seq.*) as amended, requires that a Water Quality Certification Permit be obtained for anticipated discharges associated with construction activities or other disturbance within waterways. Section 401 of the CWA does not apply to this project, as there would be no discharge associated with construction activities or other disturbance within waterways.

Surface water resources are not affected by existing operation and management. There is likely some recharge of the shallow ground water aquifer by diversions in the ditch during irrigation under current conditions.

The proposed project would not change or affect water rights or the amount of water diverted. Consequently, recharge of the shallow ground water aquifer from the ditch would be reduced compared to the No Action alternative.

Surface water resources would not be impacted by the proposed action. Small amounts of water would occasionally be discharged from the proposed sluice pipe into the Rio Ojo Caliente. These discharges would infiltrate into the alluvial sediments of the floodplain. Water quality in the Rio Ojo Caliente would not be affected by construction or operation of the proposed buried pipeline segments.

Section 402 of the CWA (CWA; 33 U.S.C. 1251 *et seq.*), as amended, regulates point-source discharges of pollutants into waters of the United States and specifies that storm-water discharges associated with construction activities would be conducted under the National Pollution Discharge Elimination System (NPDES) guidance. Construction activities associated with storm-water discharges are characterized by such things as clearing, grading, and excavation, subjecting the underlying soils to erosion by storm-water, which results in a disturbance to one or more acres of land. The NPDES general permit guidance would apply to this project because the total area is greater than one acre. Therefore, a Storm-Water Pollution Prevention Plan (SWPPP) is required. Standard Best Management Practices to prevent on- and off-site erosion would be incorporated in contract specifications. Impacts from storm-water are expected to be negligible.

3.1.5 Floodplains and Wetlands

Executive Order 11988 (Floodplain Management) provides Federal guidance for activities within the floodplains of inland and coastal waters. The order requires Federal agencies to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains. The

project area is classified as a special flood hazard area inundated by 100-year floods with no elevations determined (FEMA 1989). Replacement of ditch with a pipeline would reduce the potential damage from flooding to the acequia. Construction would occur along the existing acequia alignment and not result in permanent alterations to the adjacent floodplain. Therefore, impacts to the historic or current floodplains are not expected due to the proposed project.

Executive Order 11990 (Protection of Wetlands) requires the avoidance, to the greatest extent possible, of both long and short-term impacts associated with the destruction, modification, or other disturbance of wetland habitats. Wetlands do not occur within the proposed project location. Therefore, no impacts to wetlands would occur.

3.2 Air Quality and Noise

3.2.1 Air Quality

The Clean Air Act of 1970, as amended, established National Ambient Air Quality Standards for six criteria air pollutants: ozone, airborne particulates, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. If measured concentrations of the six pollutants exceed their respective standards, the U.S. Environmental Protection Agency can designate the area as a non-attainment area for that pollutant.

The Upper Rio Grande Valley Intrastate Air Quality Control Region 157 covers 6,136 square miles in the northern section of the state including that portion of Rio Arriba County lying east of the Continental Divide. No exceedences of the National Ambient Air Quality Standards have been measured in the air quality monitoring network in Rio Arriba County (New Mexico Environment Department 2008a). The nearest air quality monitoring stations are in Santa Fe County (New Mexico Environment Department 2008b). Therefore, the area is currently in attainment of all Federal air quality standards.

The no action alternative would not affect existing air quality as no changes would occur in regards to rehabilitation of the acequia.

The proposed project would result in short-term effects to local air quality from operation of a backhoe during construction. A temporary increase in particulates (dust) would be expected as a result of soil disturbance. Also, local concentrations of carbon monoxide would increase minutely from equipment emissions during the 10-day construction period. No long-term effects to air quality are anticipated as a result of operation of the proposed facilities.

The appropriate area for cumulative effects analysis for air quality is the area within 300 feet of the project area. Effects of the project on air quality beyond that distance would be negligible.

The effects of past and ongoing actions on air quality in the airshed are represented by the existing conditions. There are no known future actions that may impact air quality and that would overlap spatially and temporally with the proposed action. Consequently, the project would not have any cumulative effects on air quality.

Construction-related effects to air quality would be minimized with Best Management Practices (BMPs) by: 1) requiring the contractor to have emission control devices on all equipment; 2)

employing the use of best management practices to control wind erosion, including wetting of soils within the construction zone; 3) compliance with local soil sedimentation and erosion-control regulations; and 4) the use of already paved or graveled roads for access to the work area. Construction and maintenance of the proposed project would conform to air quality control regulations as established by the Clean Air Act and the New Mexico Air Quality Control Act.

3.2.2 Noise Levels

In considering potential effects of increased noise levels, sensitive noise receptors are identified in a project area. Sensitive receptors include but are not limited to homes, lodging facilities, hospitals, parks, and undeveloped natural areas.

The project area generally has a moderate to low level of noise as most of the area is semi-rural with two-lane paved roads and scattered homes. Sounds created by humans heard in the project area included vehicle traffic traveling adjacent roads, especially U.S. Hwy. 285.

The no action alternative would not result in any construction in the project area. Therefore, there would be no effect on current noise levels.

If the proposed action is implemented, there would be temporary increases in noise levels from backhoe operation, lasting for about four months during the construction period. Additional construction-related noise from vehicles and people at the site would persist throughout the construction period. These increases in noise would occur in day time hours and may disrupt the relatively quiet project setting. Birds and other wildlife that use this area may be temporarily displaced by the increased level of noise.

Cumulative effects of noise increases were assessed using an approximately one-half mile radius from the project area, assuming that large equipment noise may be heard from that distance at times. The increase in noise generated by construction of the project would add to noise levels from vehicles on U.S. Hwy. 285 and other roads and noise generated from surrounding homes, resulting in a cumulative increase in noise levels during the period of construction.

To reduce temporary construction noise, construction contract BMPs would require that construction equipment and activities comply with state and local noise control ordinances.

Background noise levels in the proposed project area are relatively low. According to the Noise Center for the League for the Hard of Hearing (League for the Hard of Hearing, 2007), a typical, quiet residential area, has a noise level of 40 decibels. A residential area near heavy traffic has a noise level of 85 decibels. Heavy machinery has a noise level of 120 decibels. During construction, noise would temporarily increase in the vicinity during vehicle and equipment operation. The Noise Center advises that noise levels above 85 decibels would harm hearing over time and noise levels above 140 decibels can cause damage to hearing after just one exposure. However, the increase in noise during construction would be minor and temporary, ending when construction is complete. Therefore, the proposed project would have no significant affect on noise.

3.3 Biological Resources

3.3.1 Vegetation Communities

The project area is located on the edge of the Rocky Mountain Montane Conifer Forest biotic community as described by Brown (1982). The vegetation along the Rio Ojo Caliente is typical riparian willows and cottonwood. The upland vegetation at the lower elevations is grass and sagebrush with pinyon-juniper woodland and ponderosa pine forests are at mid elevations. Forests of Rocky Mountain Douglas-fir and white fir are at the higher elevations.

BMPs include re-vegetation of the disturbed project areas with native plant species would occur following construction. No significant impacts would occur to vegetation as a result of the proposed project or no-action alternative.

3.3.2 Noxious Weeds

The Federal Noxious Weed Act of 1974 (Public law 93-269; 7 U.S.C. 2801) provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce. Executive Order 13112 directs Federal agencies to prevent the introduction of invasive (exotic) species and to control and minimize the economic, ecological, and human health impacts that invasive species cause. In addition, the State of New Mexico, under administration of the U.S. Department of Agriculture, designates and lists certain weed species as being noxious (Nellessen 2000). “Noxious” in this context means plants not native to New Mexico that may have a negative impact on the economy or environment and are targeted for management or control. Class C- listed weeds are common, widespread species that are fairly well established within the state. Management and suppression of Class C weeds is at the discretion of the lead agency. Class B weeds are considered common within certain regions of the state but are not widespread. Control objectives for Class B weeds are to prevent new infestations, and in areas where they are already abundant, to contain the infestation and prevent their further spread. Class A weeds have limited distributions within the state. Preventing new infestations and eliminating existing infestations is the priority for Class A weeds. In order to prevent this, all equipment would be cleaned with a high-pressure water jet prior to entering the project area, and before leaving an area and entering a new area.

3.3.3 Wildlife

Some of the major wildlife species in this area are mule deer, elk, coyote, black bear, mountain lion, black-tailed jackrabbit, Gunnison’s prairie dog, badger, Piñon Jay, Black-Billed Magpie, Mountain Chickadee, Red-Breasted Nuthatch, White-Breasted Nuthatch, collared lizard, fence lizard, and western rattlesnake.

The proposed project construction would take place along the current ditch alignment. The BMPs for wildlife that would be employed during construction include 1) providing sloped escape ramps along the ditch to facilitate escapement; 2) construction during the winter when reptiles and amphibians are less active; and 3) examining the trenches daily, prior to starting work, for small mammals and reptiles to be removed prior to initiating work. Therefore, no significant impacts would occur to wildlife or wildlife habitat as a result of the proposed project or the no-action alternative.

3.3.4 Special Status Species

Three agencies have primary responsibility for protecting and conserving plant and animal species within the proposed project area. The United States Fish and Wildlife Service (USFWS), under authority of the Endangered Species Act of 1973 (16 U.S.C. 1531), as amended, has the responsibility for Federal listed species (USFWS 2008). The New Mexico Department of Game and Fish (NMDGF 2008), has the responsibility for state-listed wildlife species. The New Mexico State Forestry Division (Energy, Minerals, and Natural Resources Department) has the responsibility for state-listed plant species. Plant species of concern are listed on the New Mexico Rare Plants Technical Council Website (NMRPTC 1999). Each agency maintains a continually updated list of species that are classified, or are candidates for classification, as protected based on their present status and potential threats to future survival and recruitment into viable breeding populations. These types of status rankings represent an expression of threat level to a given species survival as a whole and/or within local or discrete populations. Special status species that potentially occur in Rio Arriba County and may occur near the proposed project area are listed in Table 1.

The plants listed in Table 1 are known to exist in Rio Arriba County, but are not likely to occur within the project area. The preferred site condition for these plants is not present within or near the project area. Therefore, there would be no effect to these endangered plants by the proposed project or the no-action alternative.

Special status animal species listed by USFWS (USFWS 2008) and New Mexico Department of Game and Fish for Rio Arriba, County (NMDGF 2008) that might occur in or near the project area but are not anticipated to occur include the following:

The Bald Eagle is a State Threatened species that recently was federally delisted, but is still protected under the Golden and Bald Eagle Act. The Bald Eagle is known to occur in New Mexico primarily during the late fall and winter months. The Bald Eagle utilizes large trees for perching and forages primarily for fish, ducks, and carrion along rivers and at local reservoirs. The Rio Ojo Caliente is a small stream lacking preferred habitat in the project area. Due to the ease of mobility of the Bald Eagle, the limited disturbance of the proposed project and the lack of preferred habitat in the project area, there would be no effect to the Bald Eagle.

The Southwestern Willow Flycatcher (Flycatcher) is a state and federally listed endangered species that relies on dense riparian habitat for nesting. It has been reported as occurring along the Rio Grande near Ohkay Owinge Pueblo and Velarde in the last ten years. Willow stands exist in the general vicinity of the project, but lack the appropriate structure for use by Flycatchers. Construction would occur during the winter months, outside the breeding season for migratory birds. There would be no effect to Flycatchers due to the lack of preferred breeding habitat.

The Rio Grande silvery minnow is a state and federally listed endangered species that has been extirpated from the Rio Chama and Rio Grande upstream of Cochiti Lake. There would be no effect to silvery minnows because they do not occur in the project area.

Table 1. Special Status Species Listed for Rio Arriba County, New Mexico, that potentially occur in the vicinity of the Proposed Project Area.

Common Name	Scientific Name	**Federal Status (FWS 2008)[a]**	**New Mexico status (NMDGF 2008)[b]**
Animals			
Bald Eagle	*Haliaeetus leucocephalus*	DM	T
Black-footed Ferret	*Mustela nigripes*	E	---
Least Tern	*Sterna antillarum*	E	E
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	E	E
Mexican Spotted Owl	*Strix occidentalis lucida*	T	---
Yellow-billed Cuckoo	*Coccyzus americanus*	C	---
Rio Grande silvery minnow	*Hybognathus amarus*	E	E
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	C	SC
Chub, Roundtail	*Gila robusta*	---	T
Jemez Mountain Salamander	*Plethodon neomexicanus*	---	T
Toad, Mountain	*Bufo boreas complex (NM)*	---	T
Falcon, Peregrine	*Falco peregrinus anatum*	---	T
Falcon, Peregrine, Arctic	*Falco peregrinus tundrius*	---	T
Owl, Boreal	*Aegolius funereus*	---	T
Pelican, Brown	*Pelecanus occidentalis carolinensis (NM)*	---	T
Ptarmigan, White-tailed	*Lagopus leucura altipetens (NM)*	---	T
Sparrow, Baird's	*Ammodramus bairdii*	---	T
Bat, Spotted	*Euderma maculatum*	---	T
Marten, American	*Martes americana origenes (NM)*	---	T
Mouse, Jumping, Meadow	*Zapus hudsonius luteus (NM,AZ)*	---	T
Plants (NMRPTC 1999)			
Tufted sand verbena	*Abronia bigelovii*	SC	SC
Cyanic milkvetch	*Astragalus cyaneus*	SC	SC
Chaco milkvetch	*Astragalus micromerius*	SC	SC
Pagosa milkvetch	*Astragalus missouriensis var. humistratus*	SC	SC
Arboles milkvetch	*Astragalus oocalycis*	SC	SC
Taos milkvetch	*Astragalus puniceus var. gertrudis*	SC	SC
Ripley's milkvetch	*Astragalus ripleyi*	SC	SC
Robust larkspur	*Delphinium robustum*	SC	SC
New Mexico stickseed	*Hackelia hirsuta*	SC	SC
Small-headed goldenweed	*Lorandersonia microcephala*	SC	SC
Chama blazing star	*Mentzelia conspicua*	SC	SC
Pagosa phlox	*Phlox caryophylla*	SC	SC
Pagosa Springs bladderpod	*Physaria pruinosa*	SC	SC
Arizona willow	*Salix arizonica*	SC	SC
Clifford's groundsel	*Senecio cliffordii*	SC	SC

[a] **Endangered Species Act (ESA)** (as prepared by U.S. Fish and Wildlife Services) **status:** Only Endangered and Threatened species are protected by the ESA.

E= Endangered: any species that is in danger of extinction throughout all or a significant portion of its range

T= Threatened: any species that is likely to become and endangered species within the foreseeable future throughout all or a significant portion of its range.

C= Candidate: taxa for which the Services has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species.

DM = Delisted Taxon, Recovered, Being Monitored First Five Years

SC= Species of Concern: taxa for which information now in the possession of the Service indicates that proposing to list as endangered or threatened is possible appropriate, but for which sufficient data on biological vulnerability and threat are not currently available to support proposed rules.

[b] **State of New Mexico status:**

E= Endangered Animal species whose prospects of survival or recruitment within the state are in jeopardy.

T= Threatened Animal species whose prospects of survival or recruitment within the state are likely to become jeopardized in the foreseeable future.
SC= Species of Special Concern.

The black-footed ferret is dependent on prairie dogs for burrows and food. Prairie dog colonies generally occur in grasslands, and do not occur in the project area. There would be no effect to ferrets because there are no suitable prairie dog colonies in the project area.

Continued operation and maintenance of the open ditch under the no action alternative would not have any effects on any threatened, endangered, or sensitive species that may occur in Rio Arriba County. The proposed action would have no effect on any threatened, endangered, or sensitive species that may occur in Rio Arriba County, as none are likely to occur in the project area.

3.4 Cultural Resources

On September 11, 2008, Corps archaeologists conducted a 12.5-acre intensive pedestrian survey of the alignment of the proposed pipeline for the acequia ditch and the staging area. Two cultural properties were identified during this survey: the acequia itself, and a single small archaeological site adjacent to the proposed staging area.

The Acequia de la Mesa Prieta is considered to be eligible for inclusion to the National Register of Historic Places. In 1995, the acequia itself was determined to be eligible for the National Register of Historic Places under criterion (d) (HPD Log 48019); further, the Corps considers the Mesa Prieta Acequia to be eligible for inclusion to the National Register under Criterion (a) of 36 CFR 60.4, as irrigation features such as this one made possible the settling and farming of the area, and is thus associated with events that have made a significant contribution to the broad patterns of our history. In addition to the acequia itself, which has the previously assigned archaeological site number LA 107761, the survey identified an additional site (LA 160949) of unknown age adjacent to the proposed staging area, as well as six isolated occurrences (IOs). The newly recorded site consists of an ash stain measuring 45 x 55 cm and one possibly associated lithic artifact eroding out of a two-track road cut on private land that provides access to the proposed staging area. It is unclear if the feature is natural or cultural. If the feature is cultural, and based on the local geology, there is the potential for a buried horizon measuring up to 27 m north-south by 78 m east-west, at a depth of approximately 1 m. The current project would not involve any modification of the road or the road cut, or otherwise result in the excavation of sediments that could be associated with the site, and as such would not adversely impact the site. The IOs were documented in the field and offer no further research potential.

The acequia itself is considered eligible for National Register inclusion, and while the Proposed Action would change the form of a portion of the acequia, the present project would impact a relatively minor portion (4,000 feet approximately 25 percent of the total current length of 2.83 miles) of this linear property. The proposed piping in an area of repeated failure (dirt slide-in) caused by the construction of the highway would allow the acequia users to continue using this traditional water system in a historically significant way. Further, it would not alter the function

or alignment of the acequia system, both characteristics that contribute to the acequia's significance. Based on this information, it is the Corps' opinion that there would be **no adverse effect** to historic properties.

Scoping consultation is being conducted with Tribes. Consistent with the Department of Defense's American Indian and Alaska Native Policy, signed by Secretary of Defense William S. Cohen on October 28, 1998, and based on the State of New Mexico Indian Affairs Department's 2008 Native American Consultations List, American Indian tribes that have indicated they have concerns in Rio Arriba County were sent scoping letters regarding the proposed project. To date, the Corps has received no indication of tribal concerns that would impact this project.

Pursuant to 36 C.F.R. 800.13, should previously unknown artifacts or cultural resource manifestations be encountered during construction, work would cease in the immediate vicinity of the resource. A determination of significance would be made, and a mitigation plan would be formulated in consultation with the New Mexico State Historic Preservation Officer (SHPO) and with American Indian Tribes that have cultural concerns in the area. The archaeological survey report and SHPO concurrence letter are found in Appendix B.

3.5 Land Use and Visual Resources

3.5.1 Land Use

Acequia de la Mesa Prieta serves about fourteen irrigators with about 100 acres irrigated by the ditch system (Gary Martinez pers. comm.). Alfalfa and grass hay for livestock feed are the principle crops (Natural Resources Conservation Service 2008b). The no action alternative would not result in any effect on current land uses in the project area. Land uses would continue with implementation of the proposed project as are currently being undertaken.

The major soil resource concerns are wind erosion, water erosion, maintenance of the productivity of the soils, and management of soil moisture. Conservation practices on cropland generally include crop residue management, minimum tillage, and irrigation water management. Proper grazing use is a concern on grazing lands. The primary concerns are controlling erosion along roads and minimizing surface compaction.

3.5.2 Visual Resources

The project area is a rural landscape located between the Rio Ojo Caliente and U.S. Hwy. 285. Homes are separated by agricultural fields which used as pasture or for crop production. Background views of the surrounding area include low hills and mountains. The Acequia de la Mesa Prieta is not generally visible from U.S. Hwy. 285 as it runs along the base of the roadbed escarpment.

Land in the project area is privately owned by members of the Acequia de la Mesa Prieta Association (Gary Martinez pers. comm.). Lands adjacent to the project area are used for crop production, livestock grazing, or the yards of nearby homes. The project is surrounded by Bureau of Land Management and developed land. Man-made features visible from the project

area include wire fences, paved roads, and homes and outbuildings. The no action alternative would not result in any effect on current visual resources in the project area. Land uses would continue as are currently being undertaken with the proposed project.

The presence of construction equipment and workers' vehicles in the project area would have little, if any, effect on the visual quality of the project area during construction. This alternative would not change current rural character of the project area and surrounding lands. As the project would not affect visual resources or land uses, there would be no cumulative effects to land use and visual resources.

3.6 Socioeconomic Considerations

Regulations for implementing NEPA require analysis of social effects when they are interrelated with effects on the physical or natural environment (40 CFR §1508.14). Federal agencies are required to "*identify and address disproportionately high and adverse human health or environmental effects*" of their programs and actions on minority populations and low-income populations, as directed by Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations).

3.6.1 Socioeconomics

The project area is located in unincorporated Rio Arriba County between Ojo Caliente and Española, New Mexico. The acequia users are served by county services for police and fire protection. Española has emergency services, a public library, and public schools, including a community college.

Rio Arriba County had a population of 41,190 (Table 2) in 2000 (U.S. Census Bureau 2008) decreasing to 40,827 residents by July 2007. There are several residences adjacent to the project area boundaries.

The leading employment sectors in Rio Arriba County (U.S. Census Bureau 2008) are education, health care, and social services (20.9 percent) and public administration (16.4 percent). Agriculture employs about four percent of the county's workers, while hospitality services and construction, each employing more than 10 percent of the workforce (U.S. Census Bureau 2008).

No changes would occur in the project area with the no action alternative, there would be no effects related to socioeconomics of the area and no effects related to environmental justice issues. The Acequia de la Mesa Prieta would continue to maintain the open ditch and water delivery pressure would continue to be insufficient, especially for last users on the system.

There would be no effect from the proposed project on county services, such as law enforcement, fire protection, emergency medical care, or schools. No property would be acquired so no residents or businesses would be affected by relocations. The proposed project is not expected to create adverse effects on human health or the environment.

Elimination of the open ditch would result in a reduction of on-going maintenance costs for the Acequia de la Mesa Prieta. Elimination of the need to remove sediment and clear trash and

vegetation from the open ditch would reduce costs for routine maintenance. Reduced costs for association members would result in more profitable farming operations. In addition, the new sluice would remedy the problem of potential damages to private property when the ditch overflows after intercepting high levels of stormwater runoff.

Construction of the project would provide some short-term economic benefits for local businesses. Depending on the location of the contractor selected, local financial expenditures by the contractor may result in the form of purchasing supplies, renting equipment, workers' wages, and meal purchases. Some state gross receipts taxes on goods and services purchased locally (e.g. in Española, Pojoaque, or Santa Fe) would return to Rio Arriba and/or Santa Fe counties for local government use. These expenditures would contribute to cumulative economic effects on the local economy.

Table 2. Selected social demographic 2000 data for Rio Arriba County and the United States (U.S. Census Bureau 2008).

	Rio Arriba County	**New Mexico**
Total population	41,190	1,819,046
Male	49.5%	49.2%
Female	50.5%	50.8%
Median age (years)	0.1%	0.0%
Under 5 years	7.0%	7.2%
18 years and over	71.4%	72.0%
65 years and over	10.9%	11.7%
One race	96.7%	96.4%
White	56.6%	66.8%
Black or African American	0.3%	1.9%
Native American	13.9%	9.5%
Asian	0.1%	1.1%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%
Some other race	25.6%	17.0%
Two or more races	3.3%	3.6%
Hispanic or Latino (of any race)	72.9%	42.1%
Household population	40,725	1,782,739
Average household size	2.71	2.63
Average family size	3.19	3.18
Total housing units	18,016	780,579
Occupied housing units	83.5%	86.9%
Vacant housing units	16.5%	13.1%
Economic Characteristics	**Rio Arriba**	**New Mexico**
In labor force (population 16 years and over)	18,061	834,632
Mean travel time to work in minutes	28.1	21.9
Median household income in 1999 (dollars)	$29,429	$34,133
Median family income in 1999 (dollars)	$32,901	$39,425
Per capita income in 1999 (dollars)	$14,263	$17,261
Families below poverty level	1,793	68,178
Individuals below poverty level	8,303	328,933

Note: Percentages may not always sum to 100 due to rounding.

Although the racial and economic profiles of Rio Arriba County indicate that there are higher percentages of minority and low-income persons in these areas as compared with the rest of the country, there would be no disproportionate adverse effects on these populations. Rather, there would be a beneficial economic benefit to the acequia members and the surrounding community. Therefore, the proposed action complies with Executive Order 12898.

The proposed project would take place entirely along the existing ditch right-of-way. The entire Acequia de la Mesa Prieta would benefit from the proposed water system improvements. The proposed project would not affect land use or socioeconomic resources in the project area.

3.6.3 Environmental Justice

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Low-Income Populations; February 11, 1994) was designed to focus the attention of federal agencies on the human health and environmental conditions of minority and low-income communities. It requires federal agencies to adopt strategies to address environmental justice concerns within the context of agency operations and proposed actions. In an accompanying memorandum, President Clinton emphasized that existing laws, such as the National Environmental Policy Act (NEPA), should provide an opportunity for federal agencies to assess the environmental hazards and socioeconomic impacts associated with any given agency action upon minority and low-income communities. In April of 1995, the EPA released a guidance document entitled Environmental Justice Strategy: Executive Order 12898. In short, this document defines the approaches by which the EPA would ensure that disproportionately high environmental and/or socioeconomic effects on minority and low-income communities are identified and addressed. Further, it establishes agency wide goals for all Native Americans with regard to Environmental Justice issues and concerns.

Selected demographic characteristics of the population of New Mexico and Rio Arriba County are shown in Table 2. Rio Arriba County has a higher percent composition of Hispanics or Latinos (73 percent) and Native Americans (14 percent) compared to 42 and 10 percent respectively for all New Mexico residents (Table 2). The per capita income in Rio Arriba County is approximately 83 percent of the average New Mexico resident (Table 2). Correspondingly, the percentage of persons living below the poverty level in the county (20.3 percent) is about two percent greater than the state average (18.4 percent).

The Acequia de la Mesa Prieta Rehabilitation Project would be conducted under Section 215 of the Water Resources Development Act of 1999 (Public Law 106-53; 33 U.S.C. 2201 *et seq*.) as amended. This program is largely intended to provide needed assistance (technical, financial, etc.) to protect and rehabilitate acequias for their community. As such, this project would benefit an area within a minority and low-income community. No adverse impacts on minority and low-income populations are expected. Under the definition of Executive Order 12898, there would be no adverse environmental justice impacts under the proposed action.

3.7 No Action Alternative and Foreseeable Effects

There would be no effects to the above resources from the no-action alternative.

3.8 Cumulative Impacts

Cumulative effects are analyzed individually for each resource area in Sections 3.1 through 3.3. These analyses address the cumulative impact of the direct and indirect effects of the proposed action when added to the aggregate effects of past, present, and reasonably foreseeable future actions. For all resources, the aggregate effect of past and present actions was considered to be represented by the current, existing condition of the resource (Council on Environmental Quality 2005). Therefore, the specific effects of individual past and present actions typically were not cataloged in the analysis. In order for direct or indirect effects to incrementally add to the effects of past, present, or reasonably foreseeable future actions, they must overlap with those effects in time or space (Council on Environmental Quality 1997).

The time frame for analysis of cumulative effects varied, depending on the duration of direct and indirect effects. For example, direct effects resulting from construction were expected to persist for relatively short periods of time (about one month). Conversely, indirect effects resulting from operation of the rehabilitated acequia system would persist for the life of the facility. Similarly, the geographic bounds for cumulative effects analysis varied with the resource under consideration, depending on zone of influence of the direct or indirect impact being analyzed.

NEPA defines cumulative effects as "…the impact on the environment which results from the incremental impact of the action when added to other, past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

The footprint of the proposed project lies within a rural area. The proposed acequia improvements would take place within Rio Arriba County (Figure 1). The improvements to the acequia would not significantly impact the current conditions of the local environment. For these reasons, the proposed project when combined with past, present, or future activities in the Acequia de la Mesa Prieta would not significantly add to or raise local cumulative environmental impacts to a level of significance.

4.0 CONCLUSIONS AND SUMMARY

The proposed action evaluated in this DEA addresses the method and potential effects for the acequia improvements. The proposed acequia improvements are located immediately adjacent to a major road (U.S. Hwy. 285) in Rio Arriba County, New Mexico. Impacts to the environment would be negligible and short-term. The proposed acequia improvements would benefit the local community and the county. The proposed project would not result in any moderate or significant, short-term, long-term, or cumulative adverse effects. Therefore, the proposed project would not significantly affect the quality of the human environment and is recommended for implementation.

5.0 PREPARATION, CONSULTATION AND COORDINATION

5.1 Preparation

This DEA was prepared for the Acequia de la Mesa Prieta by the U.S. Army Corps of Engineers, Albuquerque District (USACE). Personnel primarily responsible for preparation include:

Michael D. Porter	Fishery Biologist
Jonathon Van Hoose	Archaeologist

5.2 Quality Control

This DEA has been reviewed for quality control purposes. Personnel who reviewed this EA include:

Gregory D. Everhart	Archaeologist, USACE, Albuquerque District
Danielle A. Galloway	Biologist, USACE, Albuquerque District
Julie Alcon	Supervisory Ecologist, USACE, Albuquerque District

5.3 General Consultation and Coordination

Agencies and entities contacted formally or informally in preparation of this Environmental Assessment include:

US Fish and Wildlife Service
New Mexico Ecological Services Field Office
Albuquerque, New Mexico

US Bureau of Land Management
Taos Field Office
Taos, New Mexico

NM Forestry and Resources Conservation Division
Energy, Minerals, and Natural Resources Department
Santa Fe, New Mexico

NM Department of Game and Fish
Conservations and Services Division Albuquerque, New Mexico

Environment Section
New Mexico Department of Transportation
Santa Fe, New Mexico

Water and Waste Management Division
NM Environmental Department
Santa Fe, New Mexico

Surface Water Quality Bureau
NM Environmental Department
Santa Fe, New Mexico

NM State Engineer
Santa Fe, New Mexico

NM Interstate Stream Commission
Santa Fe, New Mexico

5.4 Distribution List for Draft Environmental Assessment

Mr. Wally Murphy
U.S. Fish and Wildlife Service
NM Ecological Services Field Office

Mr. Rob Lawrence
USEPA, Region 6
Office of Planning and Coordination

Ms. Marcy Leavitt
Water and Waste Management Division
New Mexico Environmental Department

Mr. Steve Hansen
Bureau of Reclamation
Albuquerque Area Office

Mr. Sam DesGeorges
Bureau of Land Management
Taos Field Office

Mr. Matt Wunder
New Mexico Department of Game and Fish
Conservation Services Division

Mr. John R. D'Antonio, Jr.
State Engineer
New Mexico State Engineer

Mr. Robert Sivinski
New Mexico State Forestry Division
Energy, Minerals, and Natural Resources Department

Mr. Lorenzo Valdez
County Manager
Rio Arriba County

Head Librarian
Espanola Public Library
Espanola

5.5 Summary of Public Review, Comments Received and Corps' Responses

A scoping letter was sent to the public on September 19, 2008. Response letters received from the New Mexico Office of the State Engineer (letter dated September 30, 2008); the Navajo Nation (letter dated October 3, 2008); and the Hopi Tribe (letter dated October 14, 2008) had no concerns on the project.

The Draft Environmental Assessment (DEA) was available for public review and comment from October 15 to November 14, 2008. A Notice of Availability was published in the Santa Fe New Mexican on October 14, 2008. The DEA was available on the Corps' website, and the Espanola Public Library. Comment letters were received from: the New Mexico Environment Department (letter dated October 22, 2008); and the Bureau of Land Management Taos Field Office (letter dated November 20, 2008).

1. New Mexico Environment Department: The provided comments from the Air Quality and Surface Water Quality Bureaus. The Air Quality Bureau noted that the proposed project would not be anticipated to have negative long-term effects on air quality. The Water Quality emphasized using Best Management Practices to retain soils on site and prevent soil and water contamination.

Corps' Response: Concur. These issues were addressed in the Draft Environmental Assessment with Best Management Practices for protecting air and water quality.

2. Bureau of Land Management Taos Field Office: The Bureau provided comments requesting clarification on the proposed action and additional cultural resources information for their analysis for processing a rights-of-way authorization.

Corps' Response: Concur. Comments incorporated into the Final EA as appropriate. Cultural resources information provided under SHPO guidelines.

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Appendix A

Scoping Letters

September 19, 2008

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Mr. John R. D'Antonio, Jr.
State Engineer
New Mexico State Engineer
Bataan Memorial Bldg.
P.O. Box 25102
Santa Fe, New Mexico 87504-5102

Dear Mr. D'Antonio:

The U.S. Army Corps of Engineers (Corps), Albuquerque District, at the request of the Acequia de la Mesa Prieta in Rio Arriba County, New Mexico is planning the rehabilitation of the Acequia de la Mesa Prieta main ditch under the Water Resources Development Act of 1986 (Public Law 99-662; 33 U.S.C. 2201 et seq.), as amended. The proposed project area is located approximately six miles south of Ojo Caliente, New Mexico on the Rio Ojo Caliente along U. S. 285. It is also approximately seventeen miles north of Espanola, Rio Arriba County, New Mexico (Figure 1). The Corps is seeking public and agency input for consideration during the planning of the project.

The purpose of this project is to provide the acequia with a reliable and more efficient water distribution system that is more efficient at removing sediment from diverted water and less subject to erosion from the U.S. 285 road and bank. General project components potentially include: 1) rebuild 4000 feet of ditch with 18-inch diameter plastic pipeline along the road embankment; 2) build a new sluice structure to remove heavy sediment, trash and debris; 3) build a new sluice structure to remove secondary sediments before irrigation water enters the siphon; 4) install 36 inch diameter corrugated metal pipe over the new pipeline; and 5) install wire-bound mattress to safely pass drainage flows from U.S. 285 over the new 18-inch diameter plastic pipeline.

Please respond with your concerns regarding the project. Your input will be used in preparing an environmental assessment to comply with the National Environmental Policy Act (NEPA) currently being prepared by the Corps.

Please mail or fax by **September 29, 2008** to comments to:
Attn: Mr. Michael Porter,
U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza NE
Albuquerque, NM 87109
505-342-3668 fax

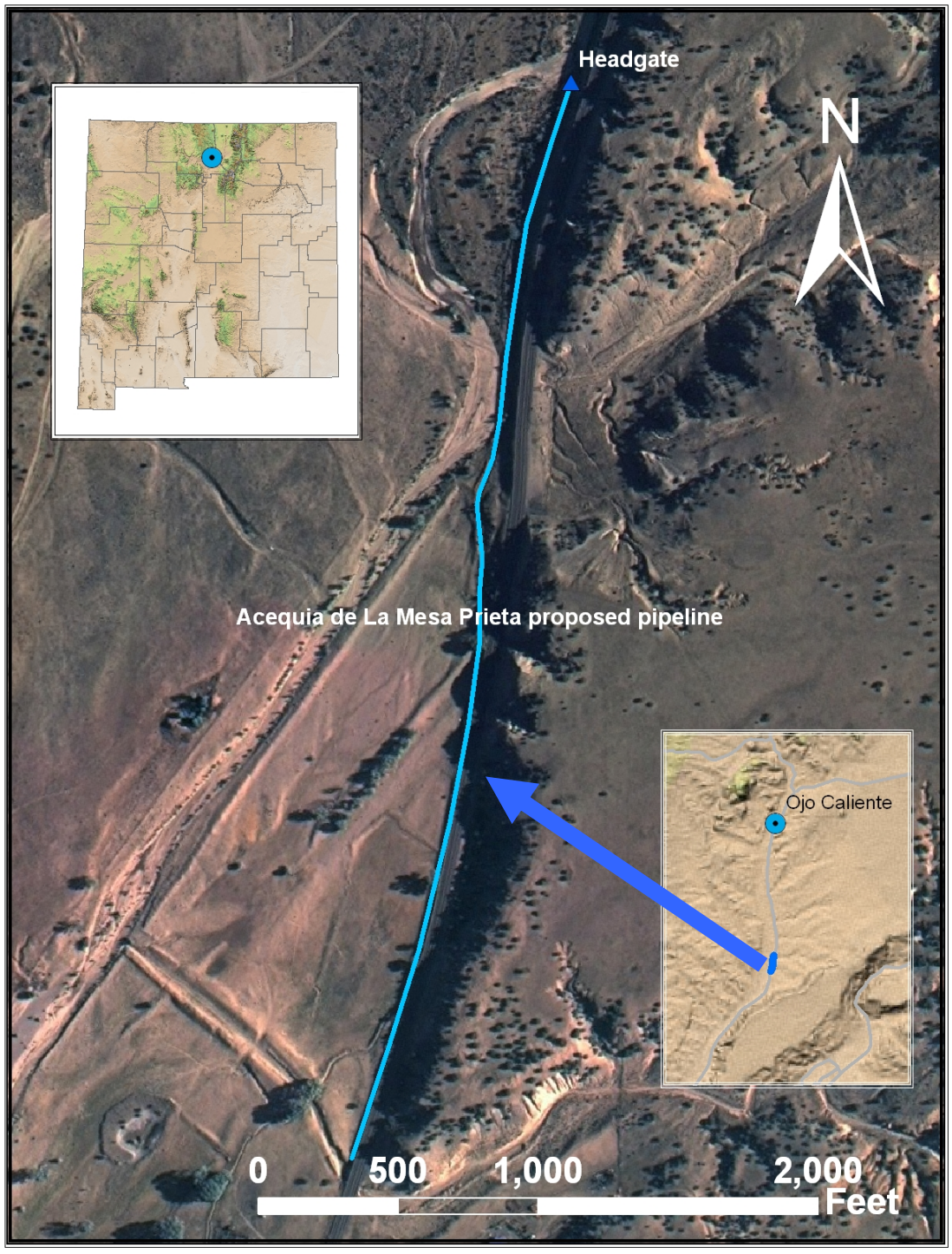
If you have any questions or need additional information, please contact Mr. Michael Porter at (505) 342-3264 or e-mail at Michael.D.Porter@usace.army.mil.

Sincerely,

Michael Porter
Environmental Resources Section

Enclosures

Figure 1. The Acequia de la Mesa Prieta project area near Ojo Caliente in Rio Arriba County, New Mexico.



US Army Corps of Engineers
Albuquerque District

Comment Form

Acequia de la Mesa Prieta Rehabilitation Project
Rio Arriba County, New Mexico

Please make comments specific to the project described in the attached letter.

1. What issues (for example, natural or cultural resources, social, or economic) are of concern to you in regards to the project?

2. Other comments about the project.

Please attach additional sheets or materials if desired.

US Army Corps of Engineers
Albuquerque District

Comment Form (Cont.)

- ❑ Please keep my name on the project mailing list.
- ❑ Please remove my name from the project mailing list.

Name: _____

Address: _____

City, State, Zip: _____

Appendix B

Cultural Resources Survey Report and SHPO Concurrence Letter

October 7, 2008

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Ms. Katherine Slick
State Historic Preservation Officer
New Mexico Department of Cultural Affairs
Historic Preservation Division
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe, New Mexico 87501

Dear Ms. Slick:

Pursuant to 36 CFR Part 800, the U.S. Army Corps of Engineers (Corps), Albuquerque District, is seeking your concurrence in our determination of "No Adverse Effect to Historic Properties" for a proposed rehabilitation of the Acequia de la Mesa Prieta (Acequia). The Corps, at the request of the New Mexico State Engineer/Interstate Stream Commission and Acquia de la Mesa Prieta Association (Association), is planning a project that would rehabilitate a 4,000-foot segment of the Acequia de la Mesa Prieta and associated structures. Work would be conducted under the Water Resources Development Act of 1986 (Public Law 99-662), as amended.

The Acequia is located in Rio Arriba County, and is situated to the east and approximately parallel to the Rio Ojo Caliente; it is also bounded for much of its length on the west by the current alignment of U.S. Highway 285. The diversion is approximately 17 miles south of the community of Ojo Caliente. The project area is located on private land owned by members of the Association. The Acequia obtains water from the Rio Ojo Caliente, and the system as a whole provides water to ?? irrigators and approximately ?? acres of cultivated land.

One of the key reasons that the Association wants to pursue this project is that the current system is highly impacted by constant erosion and sediment movement from the embankment of U.S. Highway 285. The present highway embankment, which was built with a very steep grade, encroaches to within a meter or less of the acequia in the proposed project area, and the downward movement of sediment from this slope into the acequia has created numerous difficulties in clearing and maintaining the open-ditch acequia system in this portion of its extent. In

order to alleviate this problem, the proposed project would include the following measures:

- Laying of 4,000 feet of new 18-inch diameter plastic pipeline from the existing point of diversion downstream along the road embankment;
- Construction of a new sluice structure to sluice out heavy sediment, trash and debris before they enter the new pipeline;
- Construction of a new sluice at the inlet of the existing welded steel pipe siphon to sluice out secondary sediments before irrigation water enters the siphon;
- Extension of existing 36 inch diameter corrugated metal pipe, located under U.S. Highway 285, over the new PVC pipeline; and
- Extension of the existing wire-bound mattress twenty-four feet in order to safely pass drainage flows from U.S. Highway 285 over the new 18-inch diameter plastic pipeline.

Pursuant to 36 CFR 800.2, consulting parties in the Section 106 process identified for the Undertaking include the Corps, the Association, and your office. Consistent with the Department of Defense's American Indian and Alaska Native Policy, signed by Secretary of Defense William S. Cohen on October 28, 1998, and based on the State of New Mexico Indian Affairs Department's 2008 Native American Consultations List, American Indian tribes that have indicated they have concerns in Rio Arriba County were sent scoping letters regarding the proposed project. To date, the Corps has received no indication of tribal concerns that would impact this project.

Pursuant to 36 CFR 800.4, the Area of Potential Effects (APE) for the Undertaking is considered to be the construction footprint within the Association's right-of-way (ROW) and the staging area. Access is provided on existing roads. The APE as mapped encompasses approximately XX.X acres.

Pursuant to 36 CFR 800.4(b), historic properties were identified by Corps archaeologists on September 11, 2008, as presented in the enclosed cultural resources survey report titled *A 12.5-Acre Cultural Resources Inventory for the Acequia de la Mesa Prieta, Rio Arriba County, New Mexico* (Report no. CO-2008-007, NMCRIS No. 111751). The Mesa Prieta Acequia dates to approximately AD 1735. The survey was conducted within

Assocation (private) property, and includes the staging area and construction areas. Access will be on existing local roads. No modification for access is required.

In addition to the Acequia itself, which was previously assigned the archaeological site number LA 107761, the survey identified an additional site (LA 160949) adjacent to the proposed staging area, as well as ?? isolated occurrences (IOs). The newly recorded site consists of an ash stain measuring 45 x 55 cm and one possibly associated lithic artifact eroding out of a two-track road cut on private land that provides access to the proposed staging area. It is unclear if the feature is natural or cultural. If the feature is cultural, and based on the local geology, there is the potential for a buried horizon measuring up to 27 m north-south by 78 m east-west, at a depth of approximately 1 m. The current project will not involve any modification of the road or the road cut, or otherwise result in the excavation of sediments that could be associated with the site, and as such will not adversely impact the site.

In 1995, the acequia itself was determined to be eligible for the National Register of Historic Places under criterion (d) (HPD Log 48019); further, the Corps considers the Mesa Prieta Acequia to be eligible for inclusion to the National Register under Criterion (a) of 36 CFR 60.4, as irrigation features such as this one made possible the settling and farming of the area, and is thus associated with events that have made a significant contribution to the broad patterns of our history. With regard to the proposed irrigation pipeline, the project will affect one historical element, the “open earthen ditch” design of the Acequia de la Mesa Prieta. However, while the proposed action will thus change the form of the acequia, the present project will impact a relatively minor portion (4,000 feet, approximately 25 percent of the total current length of 2.83 miles) of this linear property. No other substantial recent modifications (e.g., piping, new diversion) have occurred at this acequia to the Corps' knowledge, meaning that this 25 percent would also represent the total cumulative impacts to the acequia.

The proposed piping is in an area of repeated failure caused by the construction of the highway, and will allow the acequia users to continue using this traditional water system in a historically significant way. Further, it will not alter the function or alignment of the acequia system, both of which are characteristics that contribute to the acequia’s significance and eligibility for the National Register.

Based on the information provided in the enclosed cultural resources report, the Corps is of the opinion that there would be “No Adverse Effect to Historic Properties” by the Acequia de la Mesa Prieta project or on the historic and cultural resources of the region.

Pursuant to 36 C.F.R. 800.13, should previously unknown artifacts or cultural resource manifestations be encountered during construction, work would cease in the immediate vicinity of the resource. A determination of significance would be made, and a mitigation plan would be formulated in consultation with the New Mexico State Historic Preservation Officer and with American Indian Tribes that have cultural concerns in the area.

If you have questions or require additional information regarding the Acequia de la Mesa Prieta rehabilitation project, please contact Dr. Jonathan Van Hoose, archaeologist, at (505) 342-3687 (jonathan.e.vanhoose@usace.army.mil), or Mr. Gregory Everhart, archaeologist, at (505) 342-3352.

Sincerely,

Julie Alcon
Chief, Environmental
Resources Section

_____ I CONCUR _____
Date KATHERINE SLICK
NEW MEXICO STATE HISTORIC
PRESERVATION OFFICER

Enclosures

Addendum: The Corps was unaware that the project would require additional right-of-way clearance from the Bureau of Land Management when this letter was mailed.

Appendix C

Site Photos

Erosion of U.S. Hwy. 285 roadbed above Acequia Mesa de la Prieta.

Headgate and diversion for above Acequia Mesa de la Prieta.

Rio Ojo Caliente upstream of Acequia Mesa de la Prieta diversion.

Access route crossing the Rio Ojo Caliente upstream of Acequia Mesa de la Prieta diversion.

Appendix D

Notice of Availability and Affidavit of Publication

Notice of Availability of Draft Environmental Assessment for the

Acequia de la Mesa Prieta Rehabilitation Project, Rio Arriba County, New Mexico

Pursuant to the Council on Environmental Quality Regulations for Implementing the Procedural Provision of the National Environmental Policy Act, the U.S. Army Corps of Engineers (Corps), Albuquerque District, has completed a Draft Environmental Assessment (DEA) and Finding of No Significant Impact (FONSI) for a proposal to construct wastewater collection and water distribution lines.

The project would construct: 1) 4000 feet of new 18-inch diameter plastic pipeline from the existing point of diversion downstream along the road embankment; 2) two new sluice structures; 3) extend existing 36-inch diameter corrugated metal pipe, located under U.S. Highway 285, over the new PVC pipeline; and 4) extend the existing wire-bound mattress twenty-four feet to safely pass drainage flows from U.S. Highway 285 over the new 18-inch diameter plastic pipeline. The proposed project is located on the Rio Ojo Caliente along U.S. Hwy. 285 approximately seventeen miles north of Española, and six miles south of Ojo Caliente, New Mexico Rio Arriba County, New Mexico.

Public review of the DEA will begin on October 15, 2008 and will run for 30 days until November 14. The document will also be available on the Corps web site at http://www.spa.usace.army.mil (go to FONSI/Environmental Assessments). A hard copy will be sent upon written request. Comments on the DEA / FONSI should be sent to:

U.S. Army Corps of Engineers
Albuquerque District
Environmental Resources Section
Attn: CESPA-PM-LE (Michael Porter)
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109-3435

Paper copies of this document are also available for review at:

Espanola Public Library
314-A Onate Street NW
Espanola, NM 87532

For more information please contact Michael Porter, USACE, (505) 342-3264 or Michael.D.Porter@usace.army.mil

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Appendix E

Public Comment Letters

October 14, 2008

Planning, Project and Program Management Division
Planning Branch
Environmental Resources Section

Mr. John R. D'Antonio, Jr.
State Engineer
New Mexico State Engineer
Bataan Memorial Bldg.
P.O. Box 25102
Santa Fe, New Mexico 87504-5102

Dear Mr. D'Antonio:

The U.S. Army Corps of Engineers (Corps), Albuquerque District, in cooperation with the Acequia de la Mesa Prieta proposes to construct: 1) 4000 feet of new 18-inch diameter plastic pipeline from the existing point of diversion downstream along the road embankment; 2) a new sluice structure to sluice out heavy sediment, trash and debris before they enter the new pipeline; 3) a new sluice at the inlet of the existing welded steel pipe siphon to sluice out secondary sediments before irrigation water enters the siphon; 4) extend existing 36 inch diameter corrugated metal pipe, located under Hwy 285, over the new PVC pipeline; and 5) extend the existing wire-bound mattress twenty-four feet to safely pass drainage flows from U.S. 285 over the new 18-inch diameter plastic pipeline.

The proposed project is located on the Rio Ojo Caliente along U.S. Hwy. 285 approximately seventeen miles north of Española, and six miles south of Ojo Caliente, Rio Arriba County, New Mexico. The proposed construction period for the proposed action is three months and is expected to start during November 2008.

Pursuant to the Council on Environmental Quality Regulations for implementing the Procedural Provisions of the National Environmental Policy Act, the Corps has completed a draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the proposed construction of the pipeline. The Draft EA / FONSI, entitled "Acequia de la Mesa Prieta Rehabilitation Project, Rio Arriba County, New Mexico" will be available on the Corps web site at http://www.spa.usace.army.mil (go to FONSI / Environmental Assessments). Public review begins on October 15, 2008 and will run for 30 days until November 14, 2008.

Please review the Draft EA / FONSI and provide any written comments to the above address, Attn: Mr. Michael Porter, Environmental Resources Section. Written comments must be received **no later than November 14, 2008,** so that comments can be addressed and revisions made to the EA / FONSI in a timely manner. **If you need additional time to respond, please contact Mr. Porter immediately.** If

we do not hear from your agency or receive comments by this date, we will assume you have no concerns or have no objections to the project. You may facsimile your correspondence to (505) 342-3668. If you have any questions or need additional information, please contact Mr. Michael Porter at (505) 342-3264 or e-mail at Michael.D.Porter@usace.army.mil.

Sincerely,

Julie Alcon
Chief, Environmental Resources Section